

# Center for Neuroscience and Regenerative Medicine

USU Discussion Group

May 20, 2009



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*A Catalyst For Brain Injury Research*

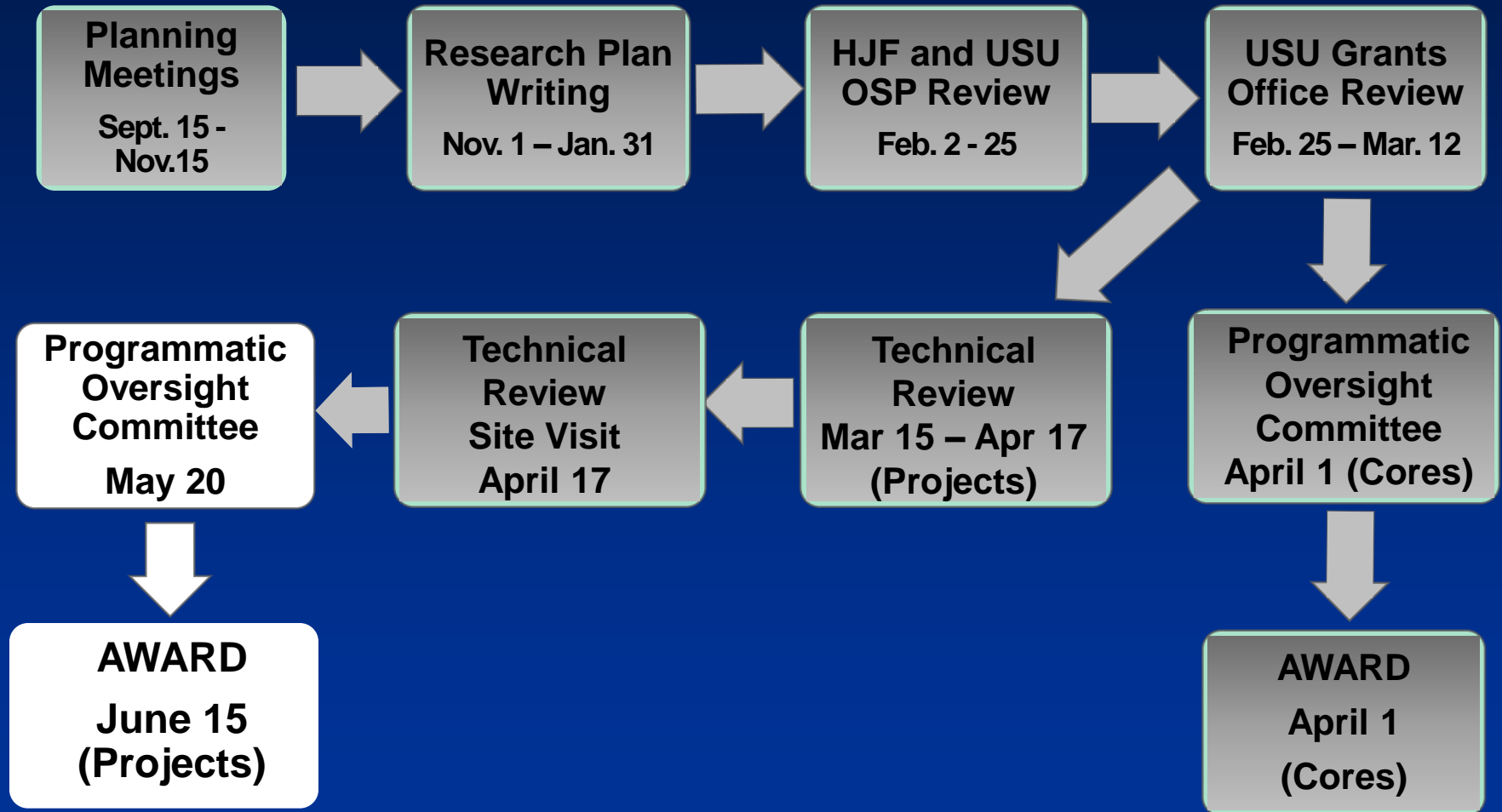


# Programmatic Oversight Committee

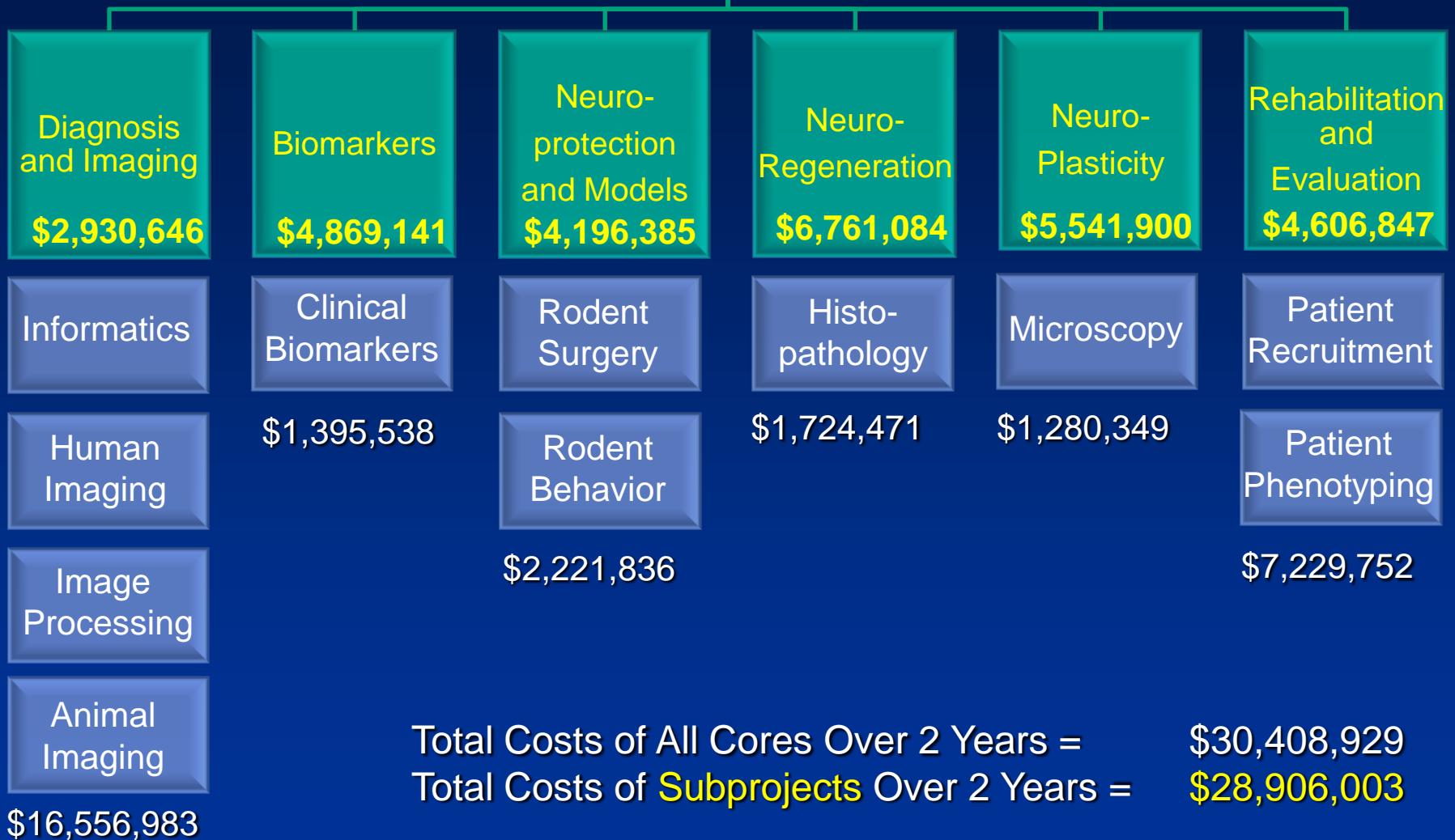
- Dr. Story Landis  
Director, National Institute of  
Neurological Disorders and Stroke
- Dr. John Gallin  
Director, National Institutes of Health  
Clinical Center
- Dr. Tom Insel  
Director, National Institute for Mental  
Health
- BG Dr. Loree Sutton,  
Director, Defense Centers of  
Excellence
- Dr. Larry Laughlin  
Dean, USU School of Medicine
- Dr. Ada Sue Hinshaw  
Dean, USU Graduate School of  
Nursing
- Dr. Dale Smith  
USU Office of the President, Senior  
Vice President
- Mr. Stephen Rice  
USU Vice President for Finance and  
Administration
- BG Philip Volpe  
Deputy Director, Joint Task Force  
National Capital Region

**Two Subcommittees: Technical Review and Human Studies**

# CNRM Program Review Process



# CNRM



# Diagnostics and Imaging Program

Jim Smirniotopoulos, David Bluemke, Alan Koretsky

## Imaging and prognosis

**"Independent predictors of PTSD and Post Concussive Syndrome In OIF/OEF veterans"**

Michael Roy, with Rapp, Xydakis, Smith, Lissek, Grillon, French

**"Natural Hx TBI civilian recruitment & early Imaging"**

Lawrence Latour, with Warach, Merino, Hsia, Barr

**"Predicting outcome after mild TBI: Brain indices of structure and function"**

Connie Duncan, with Benedek, French, Gabbay, Vascencelos, Riedy, Shenton

## Pathophysiology

**"Neuroplasticity in control of executive function after traumatic brain injury"**

Leonardo Cohen, with Xu, Talagala

**"PET imaging of neuroinflammation in TBI"**

Masahiro Fujita, with Innis, Pike, Herscovitch

## Novel Diagnostics

**"In vivo AxCaliber MRI"**

Peter Basser, with Ambrustmacher, Assaf, Barazany, Armstrong, Olson

**"Radial diffusion-weighted MRI acquisitions for diffusion tensor imaging of TBI"**

Carlo Pierpaoli, with Sarlls

**"Field deployable near infra-red imaging/EEG multi-modality system"**

Amir Gandjbakhche, with Riley, Amyot, Rapp, Roy, French

# Biomarkers Program

Brian Cox, Raymond Dionne

## **"Genomic response to TBI"**

Taura Barr, with Dionne, Warach, Latour, Conley, Singleton, Forsberg, Potter, Alexander

## **"BM-driven experimental therapeutics"**

Ray Dionne, with Pasquina, Kerr, Wang, Kim

## **"Neuro-glial antibodies in traumatic brain Injury"**

Michael Iadarola, with Cox

## **"Plasma biomarkers of blast-related brain edema"**

Fabio Leonessa, with Ling, Ecklund, Cox

## **"Evaluation of putative biomarkers in TBI"**

Gregory Mueller, with Driscoll

## **"Proinflammatory biomarkers for mild blast TBI"**

Harvey Pollard, with Mueller, Rothwell, Eidelman

## **"Non-invasive sweat patch technology for determination of neuroimmune biomarkers"**

Esther Sternberg, with Phillips

## **"Brain region specific biomarkers in models of TBI"**

Amina Woods, with Cox, Long, Dunn

## **"Evaluating a novel peptide therapy for TBI: A biomarkers approach"**

Amina Woods, with Cox

# Neuroprotection and Modeling Program

Joe McCabe, John Hallenbeck

## **"Membrane biophysics of traumatic brain injury"**

**Sergey Bezrukov**, with Zimmerberg, Pollard, Reese, Parsegian, Blank, Braga

## **"Pathological and pathophysiological alterations in hippocampus in a mTBI model"**

**Maria Braga**, with Marini, Eiden, Li, Lu

## **"Neuroprotective and neurotrophic effects of mood stabilizing drugs in TBI"**

**De-Maw Chuang**, with Zhang, Vana, Wang, Chiu

## **"Neurobehavioral phenotyping in models of BOP, HIFU, and stress"**

**Neil Grunberg**, with McCarron, McCabe, Li, Wu, Krishnamurthy, Baumann, Jacobowitz

## **"Effects of boosting brain endocannabinoid levels on fear extinction behavior"**

**Andrew Holmes**, with Kunos, Costa, Wu

## **"Blast-induced injury of blood-brain barrier and neuroimmune sequelae"**

**Chantal Moratz**, with McCabe, McCarron, Schiltz, Lonser, O'Neill, Sternberg

# Neuroregeneration Program

Regina Armstrong, Heather Cameron

**"Improving neuroregeneration after exposures to multiple mild blasts"**

Denes Agoston, with Grunberg, Long

**"Neural stem-progenitor cell repair potential at distinct sites of TBI pathology"**

Regina Armstrong, with Dobson, Ahn, Juliano

**"Using the olfactory system as a model for studying traumatic brain injury"**

Leonardo Belluscio, with Juliano, Armstrong, Xydakis

**"Characterizing mitochondrial Ca<sup>2+</sup> homeostasis and the effects of oxidative damage"**

Rachel Cox

**"HDAC inhibitor effects on adult neurogenesis post-TBI"**

Martin Doughty, with Wynder

**"Genetic identification of neural stem cell self-renewal regulators"**

Yang Du

**"Generation of iPS cells without vector"**

Ying-Hong Feng, with Qiu, Cheng, Armstrong, Juliano, Darling

**"Tracking labeled stem cells in TBI model by cellular MRI"**

Joseph Frank, with Watson, Budde, O'Neill, Ren, Mueller, Schaefer

**"Using Neural stem/progenitor cells to repair simple neural circuits after TBI"**

Sharon Juliano, with Belluscio, Galdzicki

**"Modulation of NF- $\kappa$ B-dependent immune responses for post-TBI neuroregeneration"**

Brian Schaefer, with Symes, Doughty, Schoneboom, Agoston, Watson, Galdzicki

**"Altering the ECM after TBI to enhance regeneration and plasticity"**

Aviva Symes, with Geller, Ecker, Juliano, Schaefer, Armstrong, Schoneboom



# Neuroplasticity Program

Sharon Juliano, Jordan Grafman

## **"Neuroplasticity in human sensory cortex"**

Chris Baker, with Bandettini, Goldman

## **"Functional Maps of Neuronal \* glial Activity Following TBI, Stress & TBI"**

Suzanne Bausch, with Schell, Wang, Russell, Mouratidis

## **"Motor Learning after Traumatic Brain Injury"**

Leo Cohen, with Juliano

## **"Epigenic factors and cortical map plasticity in the model of TBI"**

Zygmunt Galdzicki, with Juliano, Isaac, Kozikowski, Xiang, Schell

## **"Executive Function & Social Cognitive Adaptive Neuroplasticity"**

Jordan Grafman, with Wasserman, Goldman

## **"Subcortical Synaptic Plasticity after TBI"**

Luke Johnson, with Williams, Bandettini, Grafman, Bausch, Mouratidis, Schell

## **"Does TBI alter Extrinsic and intrinsic connectivity in sensory cortex?"**

Sharon Juliano, with Galdzicki, Wang

## **"Development of an organotypic brain slice model for shear injury"**

Michael Schell, with Russell, Juliano, Johnson, Bausch, Xiang

## **"Glial and Inflammatory Maps of Traumatic Brain Injuries"**

Bruce Schoneboom, with Schell, Russell

## **"The Role of Reward in Human Neuroplasticity"**

Eric Wasserman, with Bandettini, Goldman, Ling, Grafman, Cohen

## **"Retrograde Injury Signaling and Cytoskeletal Alternations in Barrel Cortex after TBI"**

Xin Xiang, with Juliano, Schell

# Rehabilitation and Evaluation Program

Paul Pasquina, Leighton Chan

## **"Effects of rapid reciprocal exercise vs. light therapy in TBI & PTSD"**

Diane Damiano, with Benedek, Cohen, Youngstedt, Beutler

## **"Exercise training, aerobic capacity, fatigue, and activity tolerance in TBI"**

Diane Damiano, with Keyser, Chan, French

## **"Pilot study to assess the application of haptic technology to functional improvement in persons with mild and moderate TBI"**

Leighton Chan, with Gerber, Duric, Palsbo

## **"Development of a robotic telerehabilitation system for warriors with TBI"**

Diane Damiano, with Park, Zhang, Hansen

## **"Evaluation of the safety and efficacy of the BrainPort™ balance device"**

Yadira Del Toro, with Weinstein, Hoppes, Pasquina

## **"Novel cognitive rehabilitation approaches for OIF/OEF TBI patients"**

Lou French, with Pasquina, Keyser, Chan

## **"Epidemiology of headache disorders in a military cohort with and without TBI"**

Ann Scher, with Finkel, Schwab, Solomon, Pasquina

## **"Computerized dynamic posturography in the military population"**

Barbara Springer, with Lambert, Garbrecht, Del Toro, Golden

## **"Cognitive AT & services delivery for people w/ moderate TBI"**

Sandra Harrison-Weaver, with Cooper, Pramuka, St. Laurent

## **"Assessment of sleep disturbance/disorders and sleep-associated neural plasticity in Service Members with mild or moderate traumatic brain injury"**

Carlos Zarate, with Duncan, Pastel, Coppola, Miller, Lettieri

# CNRM

Director (acting), Dr. Regina Armstrong  
Co-Director, Dr. Walter Koroshetz

## Administrative

Executive Manager, Hastings  
Program Manager, Cook

Henry M. Jackson  
Foundation

## Diagnostics

Smirniotopoulos  
Bluemke  
Koretsky

## Rehabilitation

Pasquina  
Chan

## Neuroprotection

McCabe  
Hallenbeck

## Neuro-regeneration

Armstrong  
Cameron

## Neuroplasticity

Juliano  
Grafman

## Biomarkers

Cox  
Dionne

Program Manager, Fitzsimmons-Molina

Program Manager, Youngren

Program Manager, Sawyers

Program Manager, TBD  
(GS Intern)

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(GS Intern)

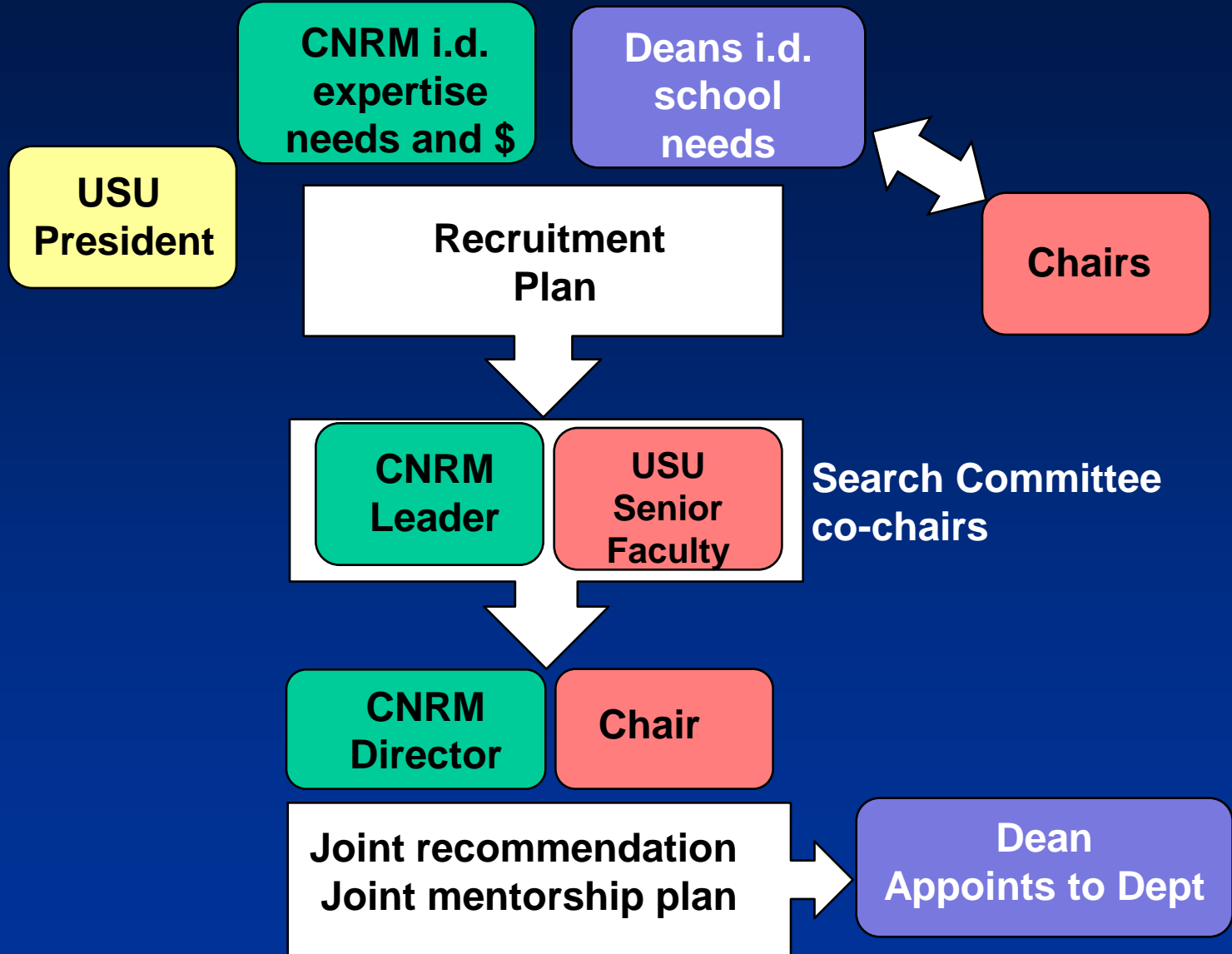
Program Manager, TBD  
(GS Intern)



## **CNRM Leased Space**

12725 Twinbrook Parkway in Rockville, MD

# CNRM Governance for Faculty Recruitment



# Faculty Recruitment Plan

## Initial Set:

1. Clinician (M.D.) with (acute) head injury expertise and ability to lead a strong, collaborative clinical research program. SOM, Neurology Department.
2. Neuropathologist (M.D.) to lead research program that can interface with AFIP, NIH, and USU investigators. SOM, Pathology Department.
3. Nurse researcher (Ph.D.) with head injury expertise and ability to lead a strong, collaborative research program. GSN.

# Human Studies Subcommittee

- Facilitate CNRM protocol planning and submission for current site specific IRBs
- Work with investigators to plan and implement a topical IRB for neuroscience across sites involved with CRNM

# Future Communications

- CNRM Website
  - Testing site functions
  - Content undergoing final edits
  - Home page graphics completion pending
  - Will serve as major source of information
- USU Discussion Group meetings scheduled approximately quarterly. Tentative dates:
  - August 20, 2009 at 4:00
  - November 19, 2009 at 4:00
  - February 18, 2010 at 4:00
  - May 20, 2010 at 4:00